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Financial toxicity of cancer care in sub-Saharan Africa: protocol for a systematic review

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ABSTRACT

Introduction In sub-Saharan Africa (SSA), the number of cancer deaths is expected to double between 2020 and 2030; however, financial costs remain a barrier to accessing cancer treatment and care. There is an evidence gap on financial toxicity related to cancer care in SSA, both for the patient and for the family members providing care. Against this background, this review aims to analyse cancer care-related financial toxicity for the patient and family caregivers in SSA.

Methods and analysis A comprehensive search of peer-reviewed articles in the English language reporting the financial burden of cancer care on patients and family caregivers in SSA will be conducted using PubMed, Scopus and Web of Science from 1 January 2000 to 13 October 2023. Two researchers will independently review the titles, abstracts and full-text articles, and any disagreements will be resolved through consensus. A risk of bias assessment will be conducted using the assessment tools from the Joanna Briggs Institute Critical Appraisal Checklist. A quantitative and narrative synthesis of included studies, including the prevalence of financial toxicity of cancer care in SSA, will be developed. The review will be reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.

Ethics and dissemination Ethical review is not required because this review draws on published literature. The results will be presented at leading cancer and public health conferences, published in peer-reviewed journals and disseminated via website posts and social media channels to improve access to cancer care and to facilitate evidence-based policymaking in SSA.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This review will extend existing knowledge on the financial burden of cancer care, using the concept of financial toxicity, specifically addressing the socio-cultural and clinical contexts of sub-Saharan Africa.
⇒ The study will include not only patients but also family caregivers in order to comprehend the household-level impact of cancer care.
⇒ One limitation of this study is the language bias from selecting only English-language articles.

INTRODUCTION

Cancer is one of the leading causes of premature deaths worldwide. Every year, approximately 10 million cancer deaths occur,[1] of which one-third arise in low- and middle-income countries (LMICs).[2] As the incidence of cancer increases,[3] the financial burden has also become substantial. In LMICs, patients with cancer suffer from financial catastrophe and poverty due to lack of reliable health financing and social security systems,[4–6] preventing them from accessing necessary care. This further contributes to increased mortality rates.[7]

A growing crisis in cancer incidence and mortality has been reported in sub-Saharan Africa (SSA).[8] In 2020, 520 348 cancer deaths were registered, which is projected to double by 2030.[8 9] However, the cost of care remains a significant barrier for most patients with cancer seeking treatment. Given that government health spending is limited and public health insurance schemes are not universal, people rely heavily on their own pockets to access healthcare. In SSA, 800 million people spend more than 10% of their income on healthcare.[10] Patients with cancer often incur relatively high out-of-pocket care expenses. In SSA, chronic illness is one of the determinants of catastrophic household expenditure, which leads to impoverishment.[11]

Financial support from informal carers (often family members in the same household) is essential in this context. In West Nigeria, 82.7% of patients with cancer were reported to have suffered from financial hardships, with the main income source being their children.[12] Hence patients with cancer and informal caregivers are both exposed to a greater risk of losing employment and personal bankruptcy.[13 14] In addition to the financial costs of cancer care, the stress and psychological burden stemming from a cancer diagnosis and the financial burden of cancer care cannot be disregarded.[15] The dual impact of the financial and non-financial costs of cancer on the well-being of patients

and informal caregivers in SSA therefore warrants a comprehensive assessment.

The conceptualisation of the 'financial burden of cancer care' varies from one study to another. Some have focused on out-of-pocket payments,[6] while neglecting other aspects such as loss of productivity, income and additional indirect costs.[7] Others, in contrast, have focused on patients' subjective experiences of financial burden.[16 17] Catastrophic health spending is another concept used to assess patients' financial hardships based on their out-of-pocket spending and household income level.[18] Financial toxicity is a concept that describes the adverse consequences and burdens that patients with cancer and their family members experience due to the costs associated with cancer treatment.[4 19] Witte *et al*[20] define the term as 'the possible outcome of perceived subjective financial distress resulting from objective financial burden'. Objective financial burden includes direct and indirect care-related costs. Subjective financial distress refers to material and psychological stress, as well as negative emotions and behavioural reactions to cancer care.[4 20 21] This concept provides a comprehensive insight into the nature of the financial burden related to cancer care for patients and their family caregivers. Considering the diverse definitions of the burden of cancer care found in various studies, it is essential to consolidate such evidence through a systematic review.

Existing literature has measured financial toxicity using different tools, such as the Comprehensive Score for Financial Toxicity (COST) framework and the European Organization for Research and Treatment of Cancer quality of life questionnaire (EORTC QLQ-C30).[4] The COST framework offers a structured approach to evaluating financial toxicity in patients with cancer, focusing on various aspects of financial burden. The EORTC QLQ-C30 is a widely used questionnaire designed to assess the quality of life of cancer patients, including financial domains. These tools should be compared to determine their strengths and weaknesses in different countries and care settings, as well as their objectives.

Among the existing literature, Donkor *et al*[4] provide an important insight into the prevalence, determinants and measurements of cancer care-related financial toxicity in patients with cancer in LMICs. Their research almost exclusively focuses on quantitative studies (30 out of 31 studies selected), in which three studies from SSA were included (Kenya, n=2; Ethiopia, n=1). Since the majority of SSA countries are not equipped with a functional cancer registry, robust quantitative studies on cancer care have been relatively rare, while cross-sectional and qualitative studies have emerged in the past years.[22 23] Furthermore, Donkor *et al*[4] did not include the financial impact of cancer care on family members in scope, despite the importance of the household in economic resilience and healthcare in SSA contexts.[10–14] Our study is an attempt to fill such gaps and provide additional insights into the current status of financial toxicity related to cancer care in SSA by specifically addressing the sociocultural and clinical contexts of SSA.

Despite the high burden of cancer care in SSA, there has not been a comprehensive overview of the financial toxicity associated with cancer care in SSA. Against this background, the objective of this review is to analyse the financial toxicity of cancer care in SSA for both patients and their family caregivers.

METHODS AND ANALYSIS

Study design

This systematic review protocol was informed by the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols reporting guidelines.[24] We adopt Witte *et al*'s[20] definition of financial toxicity consisting of objective financial burden and subjective financial distress to obtain a holistic view of the adverse impact of cancer treatment. Consequently, the review goes beyond an economic evaluation review,[25] which focuses on health economic evaluation research measuring the costs and benefits of selected interventions. Furthermore, the unit of measurement for financial toxicity is so diverse across studies that it would be difficult to apply the economic evaluation framework to this study. Alternatively, we will attempt quantitative and qualitative syntheses using the available data and tools. This systematic review protocol was registered with the International Prospective Register of Systematic Reviews on 4 October 2023 (PROSPERO registration number CRD42023469011). The results will be reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidelines.

Eligibility criteria

The eligibility criteria for the study are listed in table 1. This criterion is used to formulate the search strategy and screening.

Information sources and search strategy

Three electronic databases (PubMed, Scopus and Web of Science) will be searched. We will limit the search period from 1 January 2000 to 13 October 2023, considering the drastic shifts in SSA's demographic and disease burden structures, health and social security systems, and technological progress related to cancer care over decades. A manual search of the reference lists of the included studies will be performed to supplement the database search. The search strategy includes terms related to the following concepts: cancer, cancer patients, delivery of healthcare, cost of illness, cancer survivors and SSA. Medical subject headings, keywords and free text terms will be combined using the Boolean operators 'AND' or 'OR'. Online supplemental appendix 1 presents an example of the search strategy (for the PubMed database). Grey literature can be an important source of information for systematic reviews; however, it is not included in this study to make a fair comparison based

Table 1 Eligibility criteria

Category	Inclusion	Exclusion
Type of studies	► Peer-reviewed original articles.	► Grey literature, review studies and case studies.
Language	► English.	► Other languages.
Participants	► Patients with cancer and their family caregivers residing in sub-Saharan Africa.* ► All ages and genders. ► Studies in both hospital and household/community settings.	► Non-family caregivers. ► Studies analysing population-level secondary data.
Exposure	► Diagnosed with cancer.	► Not diagnosed with cancer.
Outcomes	► Financial burden (in both objective and subjective terms).	► Cost-effectiveness of specific cancer treatment.

*Sub-Saharan African countries will be identified based on the World Bank classification.[28] Forty-eight countries are included as of November 2023.

on the peer-reviewed articles and also due to financial constraints. A pilot search yielded sufficient literature eligible for the study, and we are convinced that this limitation can be overcome.

Study selection

First, information on all articles identified through the designated databases will be exported to a reference management tool, Rayyan. Duplicates will then be removed before further screening is conducted. The PRISMA flow chart will be used to display the screening results.

Second, two independent reviewers will perform the title/abstract and full-text screening. All articles identified as potentially eligible for inclusion through the title/abstract screening will be obtained in full text. Any disagreements will be resolved through consensus.

Data extraction

An electronic data extraction form will be developed, and full-text data extraction will be performed by one reviewer, whose results will be confirmed by the other. The data to be extracted include general information, study eligibility, setting, cancer type, study design, data collection, participants, outcome measurements and overall findings.

Quality assessment of the included studies

Two reviewers will independently assess the quality of the included studies. Qualitative studies will be assessed using the Joanna Briggs Institute Critical Appraisal Checklist for qualitative research.[26] Quantitative studies will be assessed according to the appropriate Johanna Briggs Institute Critical Appraisal Checklist, such as the ones for cross-sectional and cohort studies.[27] Disagreements will be resolved by discussion. To enable comparison, each article will be rated on a 3-point scale. First, the total score according to the appraisal checklist will be divided by the number of questions in the checklist. The risk of bias scores will be categorised as low (below 50%), moderate (50–70%) and high (80% and above). Low-quality studies will then be excluded from the research.

Analysis strategy

The review will follow a narrative synthesis approach by summarising both quantitative and qualitative data in principle, although a meta-analysis of quantitative data may be attempted when feasible. We will mainly use quantitative data to determine the prevalence of financial toxicity and both qualitative and quantitative data to determine the determinants and consequences of financial toxicity. Qualitative data will also be used to investigate subjective financial toxicity and coping strategies employed by patients and family members. The data will be analysed based on the cancer continuum, from the diagnosis and treatment to palliative care. Then, subdomains based on the socio-ecological model (SEM), which is widely used in public health interventions, will be combined. This model consists of four layers: individual (behaviours, perceptions, demographics, etc), interpersonal and family (socioeconomic factors, social support, etc), community and organisational (infrastructure, workforce, referral networks, etc), and political and environmental (health funding systems, political agenda, etc). Evidence will be synthesised based on the study design. We will conduct a random effect meta-analysis when more than two studies provide the prevalence of cancer-attributable financial burdens in SSA countries. Qualitative studies will be coded using SEM to determine the coping strategies that were adopted to reduce financial toxicity. Emerging themes will be explored and refined, and any discrepancies resolved through discussion.

Patient and public involvement

There is no direct involvement of patients and the public in this research. The research question was inspired by the interviews with patients with cancer and their family caregivers that took place in Burkina Faso and Senegal in 2023–2024 and 2008–2011. The research results will be

shared with the public via Japan International Cooperation Agency's official website and social media, as well as through academic publications.

ETHICS AND DISSEMINATION

As this review draws on publicly available data and does not directly involve human participants, ethical review is not required. The results will be published in peer-reviewed journals and presented in a user-friendly format to relevant policymakers and development partners.

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Contributors AI conceptualised this study. AI drafted and registered the systematic review protocol for PROSPERO. ZWH designed and performed the search. AI supervised and validated the process. Both AI and ZWH jointly drafted the manuscript, and AI critically reviewed and revised it. Both authors approved the subsequent and final versions of the manuscript. AI is responsible for the overall content as guarantor.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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